ENLARGED TONSILS AND ADENOIDS

With special reference to modern methods of treatment.

T H E S I S

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- by -

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I N T R O D U C T I O N.

The pathological conditions which affect the Tonsils and the glandular tissue which normally exists to a greater or less extent in the vault of the pharnyx are of such supreme importance owing to their widespread nature and to the permanent detrimental effect mental and physical which follows from their neglect or improper treatment as to call for a thorough investigation of the different methods of treatment which have been advocated by authorities on this subject with a survey of the results obtained and a full account of those means which are most likely to lead to a complete and lasting obliteration of the conditions. The detrimental effects of tonsillar infection are very numerous and need only be mentioned. Recurring sore throats due to attacks of tonsilitis are common, and persist so long as the infective material remains in the tonsils. Infection through the basis of the lacunae leads to a cellulitis of the tissue outside the capsule and gives rise to the common peritonsilar abscess, this condition recurring so long as the lacunae are filled with septic material. As regards local disturbances, bad taste in the mouth and foul breath are the commonest.

General effects may also follow from infection through the tonsils. As has been pointed out by Whillis of Newcastle in the Lancet of September 17th, 1910, it is now known that tuberculosis of the cervical glands in many cases owes its origin to infection through the tonsils. Acute and chronic rheumatism have also been traced to an infection by the micrococcus rheumaticus or other organism in the tonsil. This was pointed out by Rosenheim in the John Hopkins Hospital Bulletin November 1908. A small septic deeply embedded tonsil may be the cause of discomfort, inconvenience and general debility during a most important period of life, namely, that of childhood and adolescence. This condition of the tonsils may be traced as the focus of some distant infection.

While the effects arising from diseased conditions of the tonsils may vary within wide limits, hypertrophy of the naso-pharyngeal adenoid tissue causes signs and symptoms which vary more in degree than in type, the more usual effects of such hypertrophy being heavy depression, audible breathing with dyspnoea on exertion, nasal speech, slightly open mouth, nasal discharge, and a broadening of the bridge of the nose, mental dulness, mal-nutrition of the tissues generally, nocturnal cough, and in addition there may be deafness and purulent discharge from the ears if the hypertrophic tissue invades

the region of the Eustachian tubes. In addition to these immediate effects, increase in the adenoid tissue in childhood has been regarded as an undoubted progenitor of tuberculosis in later life. Until recent years the wide-spread occurrence of disease of the tonsils and hypertrophy of the adenoid tissue in the naso-pharynx were not fully recognised. It has, however, latterly been established, to a large extent by the medical inspection of school children, that this prevalence is so wide-spread as to invade all classes, both sexes, and all the earlier years of life, and that the number affected up to the age of 20 years forms a percentage of the whole population up to this age so great as to show that an abnormal state of the tonsils and adenoids is one of the most universally morbid conditions incident to man. The percentage of children affected with such conditions has been variously stated, but probably the figure of 2 per cent as a minimum would give an accurate idea of the prevalence of the conditions. The large proportion of cases in which the signs and symptons of a morbid condition of the tonsils and adenoids never subside, or recur with undiminished severity within a shorter or a longer period of treatment, furnish conclusive evidence that the methods of dealing with the disease in the first instance were faulty or lacking in the thoroughness necessary to effect a radical cure.

The scope of this thesis is to give an account of the past and present day knowledge and views on the various pathological conditions of the tonsils and adenoids to elucidate certain points in the treatment which have hitherto only been dealt with vaguely or in isolated articles, and have not generally come into the literature of medicine, and to lay down a definite line of treatment which has been proved by personal clinical experience to ensure a complete and lasting cure of the condition.

RECENT EXPERIMENTAL WORK in the PHYSIOLOGY of the TONSILS.

(Henke in the Archiv f. Laryngologie und Rhinologie 1914 Heft 2 p.231) In defence of the Tonsils having a true function he details several remarkable experiments, the summary of which is as follows:-

The first experiment concerned the feeding of rabbits with large quantities of carbon and Chinese ink. In none of the tonsils of these rabbits was he able to find even microscopically any evidence of absorption through the crypts, proving that the tonsils do not absorb from the surface.

Henke next injected insoluble pigments such as soot and Chinese ink into the mucous membrane of the nose of living animals. At various periods the tonsils of these animals were removed and showed the presence of pigment. He even experimented on persons with a sterile suspension of soot. In 24 hours he found the presence of soot in the fascial tonsils. From the deposition of the pigment in these cases, he believes that he has established a lymphatic relationship between certain portions of the nose and certain portions of the tonsils. Injections of these suspensions of soot were also made into the gums, and gave similar results. This also in the case of injections into the gums made post-mortem. As a result of these experiments he enunciates the functions of the tonsils as follows:-

They are similar to lymph modes in that they act as a filter for the lymph streams, they differ, however, from the lymph modes in that they present on one side a free surface through which the open mouths of the crypts afford to the organism an exit for foreign elements which are brought to the tonsils by way of the lymphatics.

He also says that Tonsillitis is caused by virulent organisms being carried to the tonsils parenchyma by way of the lymphatics, and is rarely, if ever, due to surface infection. Further, that Tonsillitis occurring in joint Rheumatism, endocarditis, general sepsis, etc., is the result of, and not the cause of the general condition.

After reading such statements, it would appear that the physiology of the Tonsil had been turned directly contra to the previous opinions which have the support of anatomical facts, pathological and bacteriological data and clinical observation.

In a later number of the Archiv f. Laryngologie und Rhinologie 1914 Heft 1, p.59, Amerbach details experiment carried out in a similar manner as Henke, with absolutely no confirmation of the latter's experiments.

If we were to believe Henke's experimental results, it would greatly shake our belief in such an occurrence as a descending cervical adenitis originating from a latent lesion of the tonsil, and that endocarditis, nephritis and other septic conditions follow after an acute attack of Tonsillitis and are not present when the attack of Tonsillitis begins.

ANATOMY AND PHYSIOLOGY.

Three masses of lymphoid tissue are found in the walls of the pharyngeal cavity and are as follows:-

(a) the faucial tonsil;

(b) the pharyngeal tonsil, also called Luschka's tonsil; and

(c) the lingual tonsil.

The faucial tonsil lies in the naso-pharynx and is situated between the anterior and posterior pillars of the faucea. It varies in size in different individuals. In children it is better marked than in adults. In the living subjects it can be seen projecting into the isthmus of the faucea. It is a reddish fleshy mass which is nodular or crenated in appearance, presenting depressions and elevations on its surface.

Relationships - Anteriorly. It is related to the anterior pillar of the fauces which separates it from the mouth's cavity proper. The anterior pillar is formed by the palatoglossus muscle covered by mucous membrane.

Posteriorly. It is in ralation with the posterior pillar of the fauces formed by the palato-pharyngeus muscle.

Internally. It projects into the isthmus faucium and is sometimes covered, especially in the child, by a fold of mucous membrane, known as the 'Plica Triangularis', the apex of which is attached to the anterior pillar and spreads out to be lost on the surface of the tonsil.

Externally. It is in relation with the superior constrictor muscle of the pharynx, separated from it by mucous membrane with a little loose areolar tissue. Outside the superior constrictor is the ascending palatine branch of the facial artery, and outside this the internal pterygoid muscle separating it from the ramus of the lower jaw. The muscles of the styloid process as they run to the pharynx and tongue are external relations to a certain extent (stylo-pharyngeus and stylo-glossus). The external carotid artery is at least one inch away from the external surface and behind it. Above the tonsil is the supra-tonsilar recess. The blood supply to the tonsils is from -

(1) the ascending palatine branch of the facial artery;

(2) the tonsilitic branch of the facial artery;

(3) the descending palatine branch of the internal maxillary; and

(4) the dorsalis linguae artery.

The pharyngeal tonsil or Luschkas tonsil is situated in the roof of the naso-pharynx and is especially well marked in the child. It is a collection of lymphoid nodules in relation with the roof and latteral recesses and may come into relation with the opening of the eustachian tube if enlarged.

The lingual tonsil is the name given to the collection of lymphoid nodules on the pharyngeal portion of the tongue. The raised masses give a nodular appearance to this portion of the tongue, covered by mucous membrane, and in relation with the musculature of the tongue.

Development - embryologically. The faucial tonsil is developed from the second cleft recess. The soft palate grows back and separates this cleft into an upper and lower portion. It is from the lower portion of the recess so divided that the tonsil is developed. In the fourth month several buds grow from the hypoblast of this recess into the meso-blast. These buds later become canaliculised to form the crypts. The lymphoid cells are developed from the hypo-blastic cells which form broods. The pharyngeal tonsil is developed in a similar manner from the upper portion of the second cleft recess. The lingual tonsil is developed in connection with the pharyngeal portion of the tongue from the outgrowths from the second and third arches.

PATHOLOGY AND ETIOLOGY OF THE FAUCIAL TONSILS AND POST-NASAL ADENOIDS.

Adenoids. Whereas the adenoid tissue or pharyngeal tonsil only shows one form of pathological change namely, hypertrophy, the faucial tonsils are liable to many morbid conditions. The structure of the enlarged pharyngeal tonsil is that of the normal gland with all its elements uniformily increased. In earlier childhood the tissue is soft due to a preponderance of lymphoid cells. As age advances the involution of the tissue gradually takes place, and the growth becomes harder due to an increase in the fibrillar elements, with corresponding reduction in the number of the lymphoid cells. Occasionally some of the follicles undergo suppuration and form small abscesses. The size of the growth may attain to the bulk of a walnut (uncommon) Its attachment is always central, and does not extend latterly into the faucea of Rosenmüller. In adults where adenoids have been left untreated, a cystic mass is often seen in the naso-pharynx and this may undergo chronic suppuration.

Etiology. It is essentially a disease of childhood occurring occasionally at the earliest periods of life

and the date of onset is practically never later than the third year. It may continue, however, to increase in size during subsequent attacks of rhinitis until the period of puberty. While it shows a tendency to disappear at this age, it is not unfrequently present in adults assuming the cystic form. Although the condition is not due to heredity, it is often observed in families with the lymphatic diathesis. It is favoured by small dimensions of the nose and pharynx. The "snuffles" present in children with congenital syphilis have been mentioned in causal relationship to adenoids. Several members of the same family may be affected in the same manner, all showing a tendency to hypertrohpy also of the lingual and faucial tonsils. In six families in my experience this was brought out clearly. In one of these families, four children ranging from the ages of two to twelve were all affected, and in the other families two or three out of each were affected. The prevalence of adenoids has been traced to climatic conditions, the condition being more frequently observed in cold damp districts rather than in those areas where the atmosphere is warm and dry. In the tropics the condition is much less frequent than in the temperate zones. The most frequent cause of hypertrophy of this tissue is no doubt frequent and neglected attacks of

catarrhal inflammation of the nose and naso-pharynx. The lymphoid tissue becoming once inflamed shows a great tendency to continue and become chronic, and successive inflammatory attacks gradually lead to the full morbid development of the adenoid tissue. The embryological relation of the naso-pharynx to the pituitary body has been cited as the cause for the indirect effects on the body generally of adenoids. A stenosis of the nasal passages from any cause may be sufficient to excite a hyperaemia and swelling of the post-nasal lymphoid tissue by rarifying the air in the naso-pharyngeal space. This congestion by lessening the atmospheric pressure in this region causes an increased blood supply to the tissue with a consequent hypertrophy of its constituent elements. Pre-disposing causes are diphtheria and the Exanthemata. Koch claims that there is a relationship between tuberculosis and adenoids (Trautmann) and states that children suffering from this condition react to diagonistic tuberculin injections. This reaction has not, however, been obtained with any degree of universality by other observers, nor in my own experience. Various recent researches have shown that 50 per cent. of post-nasal adenoids contain tubercles and tubercle bacilli, the tubercular disease remaining latent and the detection of its presence being only possible by means of the microscope, and this tubercular infection is secondary to other foci. These statements with

regard to tubercular infection apply equally to the faucial tonsils. (Gradle "Diseases of the Nose, Pharynx and Ear"). The Faucial tonsils are liable to both acute and chronic inflammation. Of the acute condition the following varieties occur:-

(a) Acute lacunar tonsillitis;

(b) Acute parenchymatous tonsillitis;

(c) Acute croupous tonsillitis;

(d) Acute circum tonsillar inflammation or quinsy; and

(e) Acute ulcerative tonsillitis.

The names of the above conditions indicate fully the situation of the inflammation and in every case there is a constitutional febrile reaction, pain, usually swelling and redness of the tonsils, with some swelling of the surrounding parts, which occurs in marked degree in the case of quinsy. In the croupous variety, there is an exudative inflammation leading to degeneration and ending in death of the tissue. The change may involve the epithelial covering only or may extend through the entire mucosa. The fluid which is exuded is rich in fibrino-plastic material and coagulates on the surface, forming the false membrane. In acute parenchymatous tonsillitis the tonsil usually becomes

much increased in size. On account of the exudation of inflammatory products into its substance, the acute lacunar condition is often associated with the above variety, into which it frequently runs. These five varieties of acute inflammation enumerated above cannot be considered as five distinct diseases. They are all due to infection with septic micro-organisms, but no definite organism is yet associated with any one form of tonsillitis. The variety and severity of the attack depending on the virulence of the infecting organism and the region of the particular tissues generally affected. The organism most commonly found is the streptococcus pyogenes, but staphylococci, pneumococci, and other varieties may also cause tonsillitis. As regards predisposing causes - (1) depressed general health, especially when induced by overwork or unsanitary surroundings. (2) Chronic tonsillitis by lowering the local resisting powers renders the patient liable to acute exacerbations. (3) The presence of some local infection in the nose, mouth or teeth; for example, dental caries or pyorrhoea alveolaris are frequent causes of attacks of acute tonsillitis. (4) In almost epidemic form from septic street dust or infected milk. (5) Exposure to cold or wet.

Chronic Tonsillar Infection

(a) Chronic lacunar tonsilitis;

(b) Chronic parenchymatous tonsilitis; and

(c) Chronic tonsilitis due to the B. Coli. Communis.

The first condition (a) causes but little enlargement of the tonsils, but the crypts become filled from time to time with cheesy masses, this resulting from the narrowing or bridging over of the crypt orifices, either by inflammatory processes or by a sort of villous ingrowth of the epithelium into the lacunae (Sokolowski).

Retention of crypt contents leads to dilatation or irritation. The plugs thus retained being composed of leucocytes, fatty granules, epithelial debris, cholesterin and various mycotic elements. There is frequently an offensive odour with faucial irritability and pain radiating towards the ears which is increased on swallowing.

(b) Chronic parenchymatous tonsilitis causes the enlargement of the entire tonsil. The microscope shows true hyperplasia of the lymphoid elements, and there is development of a large amount of connective tissue. This can be seen by the naked eye on section of a removed tonsil. Then it appears as trabeculae running through the mass. Not infrequently the anterior pillar of the fauces appears as a broad fibrous band which completely

envelopes the anterior half of the tonsil. This connective tissue development bears on the question of possible haemorrhage of tonsillectomy. It leads to a canalisation of the blood vessels so that after section their mouths are held open and they cannot retract within their sheath.

(c) Chronic tonsilitis due to the B. Coli. Communis.

Recent French writers (Dupuytren and others) have insisted on the existence of this separate form with a definite clinical course. Its characteristics are (1) chronic course beginning with a brief stage of acute inflammation; (2) its extreme persistence since none of the therapeutic measures usually directed against anginas are able to modify its course. In only one case excision of the tonsil sufficed to remove it; (3) the slight intensity of the local subjective symptoms; (4) the notable general effect out of all proportion to the local condition and generally manifested in digestive disorders which lessen after clearing out the crypts, but return upon the re-appearance of the crypts, thus proving the cause and effect; (5) the characteristic appearance of the matter exuded which is of a dull white colour, semi soft substance, punctiform masses emerging from the crypts but not as a rule encroaching upon the surface of the tonsil which lies between the crypts. Frequently the

masses run together suggesting a false membrane which is slightly adherent but removable without leaving a bleeding surface; (6) the integrity of the peritonsillar and pharyngeal regions; (7) the absence of glandular enlargements.

Bacteriologically, the exudate shows a pure culture of the B. Coli. Communis, both on the surface and in the section of the tonsillar tissue. In the case of enlarged tonsils due to a true hypertrophy, there is a true hyper-plasia in which the volume of theglands is increased by a multiplication of all the constituent tissues and follicles (Virchow "Krankhaften Geschwülste" Vol. 2, page 612). The epithelium does not usually show much alteration, but the papillae beneath are more numerous and less elevated than in the normal state. Section of hypertrophied tonsil shows thickening and induration of connective tissue. The crypts are dilated, their walls chronically thickened, their cavities being filled with viscid mucous, which in some cases becomes hard into matter of a caseous or even calcarious consistence, giving rise to calculus of the tonsil. Around the crypts are congregated the follicles of the tonsil which are always increased in size and generally in number. The capsule of the tonsil is also generally thickened and indurated, and the lymphatic glands of the jaw are in most cases very considerably

enlarged. (Griesinger "Archiv. F. Phys. Heilkunde" Vol. 4 page 515). Hypertrophied tonsils may in some cases appear more enlarged than they actually are, owing to the fact that they are rotated forwards and inwards towards the median line. In other cases the tonsils although much enlarged are almost hidden behind the pillars of the fauces and appear small.

HISTORICAL OUTLINE OF ADENOIDS.

It is evident on reviewing the literature on Nasopharyngeal Pathology, that adenoid growths in the nasopharynx are not very much mentioned, if at all, before the year 1860. In this year Czermak described a condition which appeared as growths in the nasopharynx resembling a cock's comb. This was believed to be the first case of adenoids to be discovered. In 1865 a case was described by the Italian surgeon Voltolini. This case was one of deafness in an adult, and on rhinoscopic examination true adenoid growths were observed. It is interesting to note that treatment was carried out by burning by electric cautery these growths which resulted in the improvement of the deafness. In 1865 again a German Surgeon Lowenberg described a similar condition occurring in three cases. It is very probable that the first complete treatise on adenoid growths was presented by a Danish Surgeon W. Meyer in the year 1868 His contribution was founded on an examination of 2,000 school children in Copenhagen, and here he described the symptoms and sequelae of the affection , and also laid down a method of surgical treatment. He deduced a percentage from his number of cases which was about 1% of the cases examined. His account of the condition

as regards signs and symptoms has probably been very little improved upon, and workers in this field seem to have simply confirmed his observations. Guye of Amsterdam, and Michel of Cologne, contributed articles in the year 1875 and 1876, and paper being read by Guye at the International Congress of Medicine at Brussels. A modification of Meyers surgical treatment was propounded by Lange, and in 1879 Solis Cohen gave an excellent account of the condition in his book "Diseases of the Throat and Nose" published in New York in 1879 (2nd edition, page 253 &c.). A paper by Tauber of Cinncinatti was published in which he found .6% of adenoid growths in his nasal and pharyngeal cases. In the year 1881 at the International Medical Congress in London, most of the writers mentioned above, met and discussed the condition of adenoids, their combined experience giving further elucidation on the subject. Since that period the wide-spread nature of the trouble has become well known, and its recognition has become imperative. Thus it is now that the detection of such cases plays an important part in the work of Medical Inspectors of Schools, which organisation has done much to bring under treatment so many cases, especially in England.

THE ADENOID FACIES.

The various facies which are described in connection with certain diseases have had one added to their number since the discovery of adenoids. Though one may at times have to be somewhat imaginative to appreciate all the details of other facies described in medicine, there need be little imagination to appreciate the adenoid facies. It is so important to recognise this facies that a separate paragraph is needed because the effects of the pathological lesion are so remote at times as not to come under the symptomatology of the condition.

When one has removed adenoids and treated the patient according to definite lines afterwards, one often sees cases in which nasal breathing is not restored. These are the cases which in after life present the adenoid facies. These along with of course the cases which have undergone no treatment at all.

The adenoid facies is not seen until the age of seven or at least has not become definitely established. At this time changes are going on in the skeletal system in the period of the second Dentition. Here we find that the alveolar arch has to expand to make room for the permanent teeth erupting. To trace the cause of the outwardly expression of adenoids, one has to look to the physics of the mouth. The tongue exercises very great muscular power and is constantly in a state of tonus. Where there is normal nasal breathing, the mouth is held shut, and the

tongue lies on the floor, constantly pressing outwards against the alveolar arches. Now look at the case where the mouth must needs be used for breathing. It is held open, and the resistance of the tongue to the alveolar arches is non-existant. This allows of the upper arch undergoing no moulding, with the result that it remains in its infantile state, presenting a narrow high arched hard palate, with broad alveolar margins, the teeth crowded together, and also the central incisors meeting (in well-marked cases) at an angle. This crowding together of the teeth upsets the hygienic conditions of the mouth, and as one often sees, results in the early carious condition of the teeth observed in patients with the adenoids facies. This crowding of the teeth often causes great irregularity of the various teeth, laterals and canines erupting behind and in front of the normal line. Owing to this high arching of the palate, the nose suffers, giving rise to a peculiarly narrowed condition of the nostrils, such cases coming up for treatment for nasal symptoms alone. On examination, these cases reveal the turbinates in a state of congestion, and should the case have gone on for some considerable time of hypertrophy, this being a purely secondary affection. Deviation of the Septum of the nose is often met within such cases, and this is undoubtedly due to the arching of the hard palate at the expense of the nose, the distance between the anterior nasal spine and the body of the sphenoid bone being very markedly increased.

As a result of this narrowing of the nostrils, and the general uselessness of such a nose, to neglect cases of adenoids in the period of childhood stands probably as one of the greatest factors in the production of a physically unfit class of people.

TREATMENT OF ENLARGED TONSILS AND ADENOIDS.

The treatment may be divided into several sections. First let us look to the treatment of adenoids. In the treatment of adenoids we may adopt (1) Prophylactic measures, (2) Conservative measures, and (3) Surgical measures. In the case of prophylatic treatment, one may look to the educational system, by which means the child at school is taught to look after domestic and personal hygiene. Such a small matter as blowing the nose becomes a very material point in the prophylaxis of adenoids. Knowing as we do the interrelation of Nasal Catarrh and Adenoid Hypertrophy, it becomes us to teach the child at school the only effectual method of carrying this out, viz: by closing one nostril while expelling the contents of the other. Again the proper ventilation of class rooms and also of the homes, the suitable clothing of children, and the taking of regular exercises, play an important part in the preventive measures we may adopt in adenoids. The idea of preventive measures can be instilled into the parents of children by educating such people. Suitable cases for such treatment are the following cases where several members of a family have suffered from the condition, thus impressing upon the parents the idea for less drastic measures which were adopted in

the case of former members of the family. Again the parents may be taught to recognise the early symptoms of the condition, and so either with the assistance of a medical attendant or by themselves, carry out the method above mentioned. In the present state of the educational system even such parents are not content with preventive measures, and the children are brought up for treatment when radical measures must be adopted, because secondary effects have got a hold. It behoves the Medical Profession to advertise to the laity the early symptoms, with a reminder of the grave consequences of neglect of treatment.

(2) Conservative measures. Such measures as above may be dismissed with slight comment, such treatment is of very little therapeutic value. Cases do occur where for reasons, (some of which may have foundation, but the great majority of which have not), the parents will not have surgical measures adopted.

In cases where the medical attendant cannot persuade the parents to have the adenoids removed, he has to try remedies which in the minds of the "laity" will "dissolve" the growths. In my own experience I have come across such cases, but have not been able in any of the cases to mediate the symptoms, at least in children. I have seen benefit result from the instillation of K.I. and Iodine in Glycerine or Eucalyptus Oil in the cases of adults. These cases where on Posterior Phinoscopic examination

shrunken adenoid growths existed in the Naso-pharynx. In children it has been said that the instillation of Colomel ointment into the nostrils has improved the condition. The idea of such treatment being that the ointment, when the child is lying down, comes in contact with the growths, causing their absorption. If adenoids were of specific origin, such treatment would seem perfect. Practically I have tried this method, but failed to get any beneficial results.

Such conservative methods as placing the patient under semi-tropical climatic influences seems to mediate the symptoms, but such is not always practicable.

(3) Surgical Treatment.

As regards indication for operation on adenoids, it is necessary to remove the adenoids when one can see that a vicious circle has been set up between the catarrh of the nose and the adenoids. Before outlining any of the operations for adenoids one may state that actual removal very often does not give benefit all at once, and indeed may not benefit the patient at all. However, where certain rules are observed in the after treatment, the therapeutic value of operation will be clearly brought out.

In the treatment of adenoids one aims at restoring nasal respiration, or it may be at bringing about nasal respiration, very often the latter, for it is often the

case that in a child of ten years of age which has suffered from adenoids since two or three years of age, nasal Respiration was a thing not known to him, and now it comes that one has to educate such children to breathe through the nose. In some cases where the after treatment has been neglected, one can still see the patient lying in bed at nights with the mouth wide open and breathing being carried on orally. In all cases the medical attendant should caution the parents to reprove the child for having the mouth open when not at food, and also to instruct them to use some form of chin strap for the patient at night. A four tailed bandage answers the purpose admirably. This need not be applied until healing has taken place after operation, because nasal breathing may be and very often is difficult until after reaction of the healing area has passed off. When this has passed off, it is well in those cases where the nostrils are very narrow to use some form of dilator for them. These can be fashioned from rubber tubing or from celluloid, but pieces of thin cardboard answer just as well. They are placed in the nostril for an hour or two at a time. These if left in the nostrils for a long time may be the cause of irritation which is often so troublesome to remedy. This small matter in conjunction with regular nasal breathing exercises suffice to bring the treatment of adenoids to

a very satisfactory termination, provided always that in the first instance the surgical operation was carried out in a radical fashion. By these methods recurrence of the condition will be brought to a minimum.

Variety of Operation.

We shall describe in detail a method of operation which in conjunction with the above rules of after treatment has proved very satisfactory in my own case. After this mention will be made of the various operations, and of other methods which at various times have been used.

Preparation of Patient.

As in all cases where General Anaesthesia is to be maintained, definite lines of preparation are to be carried out. The operation is to be performed preferably in the morning, and the patient is to have a gentle purgative the night before, and no solid food or fluid is to be given on the morning of the operation. As regards Anaesthesia I have found that Ethyl Chloride is very satisfactory, and when Tonsillotomy is also necessary the two operations can be carried out quite successfully. To give no anaethetic whatever to treat adenoids is little short of barbarism. The fear of the patient may reach such a height as to cause sudden syncope and death, and anyone who performs

the operation without anaethesia can quite well notice the great mental disturbance which comes on when visiting the patient afterwards. It is quite unnecessary to employ Chloroform or mixture of Chloroform and Ether for such cases. In a series of 600 cases of operative treatment for Tonsils and Adenoids, I have on only one occasion had any trouble is using Ethyl Chloride. The trouble was cessation of respiration which came on fully five minutes after the operation was finished. The child, however, came round on employing the usual method for such occurrences. In cases where one wishes slight prolongation of anaesthesia a mixture of Ethyl Chlor. and Ether may be used. Essentials in the operation are good light, and the position of the patient. The head being placed well over the end of the table so that the removed adenoids may not be swept into the Larynx, and also so that blood may not fall back into the windpipe. As regards light, I have found of great service a head lamp with dry battery in the pocket (made by Archd.Young & Sons, Edin.) especially useful when one is operating in a private house where as a rule the light is not so good as in the theatre of an hospital. As one may be afterwards troubled by a sympathetic otitis media it is well to examine the ears for the detection of wax, and treat this before operation. Another important point

is to have a good gag. There are numerous gags on the market, but I have found Doyen's gag very satisfactory in the case of older children, and Ferguson's gag in the case of young children. As regards Curettes St Clair Thomson's pattern or Gottstein's seem to be best with guards on them. Sponge holders are at times necessary and always should be placed on the tray of instruments, as also should be a Crico Tempotomy tube and knife. The use of the ring knife should be avoided if possible, as the damage done to the Eustachian region may counterbalance the good effects of early adenoid operation. As a rule the use of adenoid forceps is not indicated, but a pair of the Jurasz pattern may be used to remove any tags which on occasion are left. I find that it is better to insert the gag before an anaesthesia is commenced, but if there is any fear or nervousness on the part of the patient it can be inserted when the face piece is removed by quietly prizing open the jaws in the region of the last molars. After opening the gag pass the finger into the post nasal space and learn exactly the limits of the growth, and also the position of the Septum, and also the Chonae. On one occasion I discovered in this way very marked Atresia of the right Chonae, which accounted very much for the lack of nasal respiration. Pass the curette right up to the Vomerine attachment, and if one is in any way uncertain of this place the finger in to guide the curette. The curette

must be gripped firmly and held perfectly perpendicular, so that the attached mass may be removed en masse. Any deviation from the middle line will result in the one half being detached, leaving the other mass to cause sometimes serious hemorrhage, or at least it has to be removed with a second or third application of the curette which is to be avoided owing to the damage which may be inflicted to the mucous membrane covering the sphenoid bone. A scraping movement is to be deprecated and the movement of the curette must be a downward one which is indicated by a downward sweep of the wrist. The movement is continued well down into the Oropharynx to be sure of complete separation of the mass. If bleeding is brisk the patient may be sat upright, if Ethyl Chloride has been used, but if not the semi-prone position is indicated. As a rule I have a basin of iced water at hand, and by placing pieces of wool which have been steeped in the iced water across the bridge of the nose, haemorrhage is greatly lessened. Where the two operations are being performed, it is sometimes necessary to use sponges on spongeholders. I have seen serious damage result from the use of such instruments. In one case I saw a very serious case of surgical Emphysema result from the careless use of a sponge holder, while swabbing the back of the throat in a case of operation for Cancer of the Tongue. The patient ultimately

recovered. When you have removed the mass make a digital examination of the space to find out if any tags remain. Haemorrhage may be serious, but as a rule is due to the incomplete removal of the growths. The question of Haemophilia should always be made out, and in such cases it would be wise to try all palliative treatment possible with the administration of the Lactate or Chloride of Calcium, for a long period, and to operate in very bad cases only.

After operation, keep the patient in bed for two days or so, and give fluid or semi-solid fluid in a lukewarm condition for 24 hours, and for several days all food which is likely to cause irritation, such as crusts or biscuits should be withheld. Naturally there is tenderness and pain on swallowing, often radiating to the ears. This as a rule quickly passes off. I have found the use of a slightly astringent throat paint to be soothing to such patients. This may be commenced on the third day after operation. From the start, the after treatment indicated above should be carried out. A course of a palatable emulsion of cod liver oil and Malt is very often of great service.

Adenoids have been treated in various surgical methods since their discovery. Some operators have removed them with various forms of Post Nasal forceps, which are guided by means of the fingers. Modification of Volkmann's Sharp spoons have been used. Sliding post nasal forceps introduced by Morrell Mackenzie, and used

by him were at his time the fashionable instruments. Electric Cauterisation has been employed by some, notably by Capart. He also used a metallic finger shield with a sharp really artificial nail piece. Guye of Amsterdam has used on many occasions his sharpened finger nail. Recently an instrument under the name of an Adenotome has been placed on the market. The instrument is shaped in sympathy with the disposition of the parts. The action being of the guillotine type, enclosing a box into which drop the removed growths. I have used this instrument frequently, but prefer the simple curette. One finds that often on examining the box of the instrument the growths are very limited in quantity when a big mass is known to exist in the nasopharynx. The idea of the instrument seems to be exceptionally clever, but in reality the results of its use have been disappointing. This experience seems to be very general.

SURGICAL TREATMENT OF ENLARGED TONSILS.

Under this heading we shall consider the reasons and indications for removal of enlarged tonsils. Whether Tonsillectomy or Tonsillotomy should be performed is still the subject of widespread discussion, and the views of eminent writers will be given.

Indications for removal of tonsils.

The physiology of the tonsils is still only a matter for theorizing, and we may preface our remarks on the indications for the removal by stating that so far as can be ascertained in literature we can find no harmful effects which have followed their removal, of course we mean after the ordinary after effects of operation has passed off, this of course eliminates the chances of danger from haemorrhage or from the anaesthetic, and provided always the operation has been carried out with a degree of skill. Firstly, we get as indications as in adenoids mouth breathers who suffer if unattended by the consequences detailed under adenoids, viz: signs and symptoms following on the deficient oxygenation of the blood, night terrors nocturnal enuresis, etc., and also the poorly developed physical appearance of the patient. Again we get in these cases of enlarged tonsils seemingly a tendency for them to develop , diphtheria and Scarlet Fever, also recurrent sore throats and irritating cough.

Pathological ear conditions seem also to be met with in cases of enlarged tonsils which is often the reason for such patients consulting a medical man.

A most important indication for their removal is the fact that of recent years the interrelation of Tuberculosis (either localised as in the cervical glands or in the lung) with the presence of diseased or enlarged tonsils has become widely established. The demonstration of T.B. in the lacunae of the tonsils brought this out clearly, and it was after this that the early treatment of the tonsils in the case of Tuberculous or even simple cervical adenitis often prevented the external operation on these glands. In these cases of T.B. cervical adenitis of course removal of the tonsil will not in itself in all cases cause the clearing up of the glandular lesion and it is to be recommended that in the cases which do not clear up the combination of the two modes of treatment should be adopted.

As in the case of T.B. the tonsil has been cited as the portal of entry of Rheumatism, Rheumatic Tonsillitis does occur, and it seems suitable that Rheumatism be placed in the same class as Tuberculosis under this heading. Since benefit has been got in Rheumatic cases from removal of the tonsils, theorizing upon the results of Rheumatism, voz: Chorea and Cardiac troubles these

should be benefited by the removal. This has been proved by practice. Again in recent years the association of Nephritis with Tonsillitis has been recognised and in suitable cases such a condition forms an indication for operation.

Certainly there are many cases of enlarged tonsils and adenoids where operative interference is unnecessary, and one often finds that by persevering with the medical treatment one can cause a certain diminution in the size of the tonsils. In the case of enlarged tonsils the application of an astringent and antiseptic paint over a number of months it may be, often causes the condition to clear up, and brings the patient into a healthy state, but undoubtedly many cases of enlarged tonsils will not clear up in this way. Astringents of the strongest kind have very little effect on those cases where the tonsils are bullet shaped and fibrous. In such cases X-ray treatment is advocated by some. Many physicians believe that most of the cases of adenoids hypertrophy will clear up by using an alkaline nasal douche and allowing this to pass into the nasopharynx, but I believe that at the age when enlarged tonsils and adenoids are present the patient cannot be taught to use such remedies and further that by postponing radical treatment we are often allowing the

secondary effects to establish themselves. Therefore I think that enlarged tonsils and adenoids is a condition which must come under both physician and surgeon for treatment, because operation supposing it removes the cause of the trouble, the secondary effects remain to be treated on medical lines.

Now as regards the actual operation although there are many varieties of operation all classes of these should technically resolve themselves into Tonsillotomy or Tonsillectomy, or in other words whether performed by Guillotine or dissection. However a method (first brought out by Whillis of Newcastle) has been used recently by which results much akin to enucleation are got. It has been termed by some partial enucleation but undoubtedly in suitable cases total enucleation is often obtainable.

The sunject of tonsillotomy versus tonsillectomy has been so much discussed recently that I will quote the words of the most eminent specialists:-

Dr. Logan Turner, Edinburgh:- In answer to questions on enucleation of the tonsils to B.R. Shurly, M.D.

"In the case of children we still do Tonsillotomy. The exceptional cases are those in which the cervical glands are troublesome, and then enucleation is practised.

I find that haemorrhage during the operation under a general anaesthetic is the difficulty. In adults we now practise enucleation. As a rule under local anaesthetic plus adrenalin injections. The indications are recurring peritonsellar abscess, tonsillitis loaded crypts with foetid breath and enlarged glands, and occasionally we get cases of ill-health in which no other etiologic factor can be discovered. If the operation is made complete we are not usually troubled with post operative haemorrhage."

Prof. Killian says that so far as he knows the radical tonsil enucleation is not done in Germany; instead the tonsillotome or cold snare is used.

Prof. Massei of Naples does not go in with tonsillectomy because he states that the risks of haemorrhage are greater than in tonsillotomy, and as he prefers to leave some of the gland.

In France the Punch and snare were fashionable, These statements were made about five years ago.

It would appear that Shurly was the first to demonstrate the complete enucleation of the tonsil before the Post Graduate class of the West London Hospital in the summer of 1910.

Historically it is interesting to note that Celsus in the year A.D. 10 writes about enucleation of the tonsils by means of the finger. Later on in A.D. 480

Aretius performed a simple tonsillotomy and advised excision of the projecting portion of the tonsil only.

It would seem that waves of radicalism and conservatism have ebbed and flowed up to the present time, when even ~~at~~ the most eminent writers seem still to be at variance.

OPERATIONS OF TONSILLECTOMY AND TONSILLOTOMY

When the operation has been performed the result is either a tonsillotomy or a tonsillectomy - in other words if a tonsillotome or guillotine is used the operation is tonsillotomy, and if dissection is performed then it is a tonsillectomy or enucleation proper. The method introduced by Whillis of Newcastle certainly is the nearest approach to enucleation, and in many cases true enucleation really does take place. This enucleation however is not absolutely certain to take place especially so in cases where the tonsil is ragged, and also in cases where the tonsil is adherent to the anterior and posterior pillars of the fauces. This method is in my opinion the most satisfactory method for the general practitioner to employ, because the method of dissection requires the skill of a specialist, and also a skilled anaesthetist and such an operation should be performed by specialists in a properly equipped hospital theatre. Again the damage to the throat which can be inflicted by one who is not an expert is very considerable. This even is seen in cases operated on by the tonsillotome in the hands of one who is inexperienced. In the 600 cases I have operated upon I have used the method propounded by Whillis. Regarding the operation itself pre-operative instructions are given

to the parents, as in the case of adenoids. Ethyl Chloride anaesthesia is employed in from 1.5 c.c. to 5 c.c. according to the age of the patient. If for any reason whatever longer anaesthesia is required a few c.c. of Ether may be added or Chloroform itself may be used. In all my cases I used Ethyl Chloride anaesthesia with the exception of 12, in which I used Chloroform, and it is to be noted that the only cases of severe bleeding occurred under Chloroform. These were only two in number, and probably would not have occurred if it had been possible to sit the patients up. To have the patient placed in a position with the shoulder slightly elevated is a most essential point in this form of operation. A convenient mode of doing this is by placing a small basin inverted below the left shoulder of the patient while he is lying on the table. An important factor towards the success of this operation is that a heavy guillotine be employed in which the handle meets the shank at an obtuse angle, and the blade be not rounded but angular and blunt. The blunting is essential if one wishes to imitate proper enucleations of the tonsil. With the patient in position and the gag placed as in the case of the adenoid operation the guillotine is inserted and the ring is hooked round the posterior part of the enlarged tonsils; then with the fore finger of the left hand on the anterior pillar of the fauces the tonsil is pushed through the ring, the guillotine

at the same time being pulled towards the other side of the mouth. The blade is then partly closed so to prevent the tonsil escaping from the ring. The rest of the action is more one of forcibly pulling the tonsil away all the time driving home the blunted blade of the guillotine. One ought to use the smallest size of ring for the largest tonsils and vice-versa. There are cases which appear to be suitable for this operation but on placing the guillotine in position one finds that the tonsil slips out of the ring on closing the blade. This occura where the tonsil is very adherent to the posterior pillar, and in such cases if one detaches this with the finger or a bistoury the operation can be proceeded with as above. The method is simple and does not involve any special degree of skill as does true enucleation. The right tonsil is often removed with greater success than is the left maybe on account of the fact that the guillotine is being used in the left hand of the operator in the case of the left tonsil. The results of this method are more satisfactory than those got by using the original guillotine with the fork to pull out the tonsil, and also when one is conversant with this method, very little difficulty is met with because one can see exactly when the guillotine is in position the main anatomical relations which are to be avoided.

In describing true enucleation of the tonsil we shall quote such an eminent authority as Dr.Dan McKenzie mentioning the anatomical points of interest to the operator. "Embedded in a shallow pit between the anterior and posterior pillars of the fauces, the tonsil rests on a fascial layer which separates it from the superior constrictor muscle of the pharynx, and it is by cleaving this layer that we excise the tonsil. Round its edges the tonsil is attached by a fibrous band to the mucous membrane, an attachment which is particularly firm above and also in the neighbourhood of the anterior pillar . Moreover from this pillar a band or process of fibrous tissue passes backwards and downwards to merge into the lower surface of the gland in such a way as to sling it or support it like a hammock. The separation of this tough and elastic fibrous process from the anterior and to some extent from the interior surface of the tonsil is the first step in the operation. Many operators effect the severence or separation by means of a snip with scissors, but I am in the habit of using a dissector made by Messrs Mayer and Meltzer which I have found to answer very well. It possesses the great merit of simplicity and as it can be used for freeing the rest of the tonsil its employment saves time and does away with the necessity of changing instruments during the

operation. The tongue being well depressed and under the guidance of a good light the dissector is slipped between the anterior pillar of the fauces and the tonsil andmade to sweep down as far as its lower surface. Then the tonsil is pulled gently out with a pair of forceps so as to define its upper attachment. I have tried many forceps for this, beginning with an old-fashioned Uterine Vulsellum, but there are none so satisfactory as Mr. Tilley's which I can most confidently recommend. The next step is to cut through the fibrous membrane binding the upper pole of the tonsil to the mucous membrane so as to reach the fascial layer mentioned above. Once in the fascial layer further separation can be easily accomplished by my dissector or with Mayer's serrated dissector, or even with the finger, and presently the gland is detached all round save at its lower pole. This final attachment should not be cut through until we are sure we have got all the rest of the tonsil freed from its connexions. I ought to mention that once the forceps are fixed in the tonsil they should not be loosened until the tonsil is in the basin. The attachment at the lower pole is of course partly adenoid tissue and partly fibrous membrane, and it can be cut with scissors, knife, or what is better and safer a snare or tonsillotome slipped over, Tilley's forceps which are so devised as to permit of this beingdone. Having done one tonsil we turn to the other and deal with it in exactly the same manner."

As one often sees the description of an operation and the actual performance of such are two very different things, and this is specially the case in the operation of tonsillectomy. Therefore it is only to be performed by specialists and we, as general practitioners should not attempt the operation but satisfy ourselves with the next best operation, and I think that the most satisfactory results will be got by using Whillis's method. There is probably very little doubt that if one examines the tonsils removed by the latter method of Whillis, and examines also the tonsillar fossa afterwards and compares the results in cases of dissection, it will be found in the majority of cases done by the guillotine enucleation has been performed. Again the chances of recurrence are on the whole so infrequent in cases of enlarged tonsils that should a small piece of tonsillar tissue be left it will be of very little consequence. Of course in cases mentioned above where true enucleation should be performed it would be foolish for one to attempt an enucleation with the guillotine; on the chance of it turning out a true removal of the tonsil all would be well, but on the other hand if such removal does not take place then the difficulties of enucleation which has ultimately to be performed are considerably increased.

The numerous methods which are employed in operating

on enlarged tonsils whether it be by curved scissors, snares, Morcellement Guillotines or dissectors always result either in the performance of tonsillotomy or a tonsillectomy.

There can be no doubt that there are many important difficulties met with in tonsillectomy which are not found in tonsillotomy or in the method of Whillis. Summarizing these we find that the commonest, is difficulty in reaching the extra tonsillar fascial plane. This is most easily done by clearly defining the upper pole of the tonsil by pulling the tonsil gently. Then the administration of the anaesthectic. The difficulty here is the depth of anaesthesia required. Many opertors use gas and ether anaesthesia but most use chloroform. A point which in itself takes the operation of tonsillectomy outside the field of the general practitioner is the fact that an expert anaesthetist is required. Undoubtedly there is a great danger of wounding the pillars of the fauces and also when one realises the close proximity of the extra tonsillar fascial plane to the superior constrictor muscle of the pharynx another danger looms up. The question of severe haemorrhage after tonsillectomy is one on which authorities are at variance, however it seems that the risk is not really very much more than in tonsillotomy. I have found that in place of peroxide of hydrogen (the use of which is

not altogether unfraught with danger in arresting haemorrhage after tonsillotomy on account of it frothing into the larynx and asphyxiating the patient). Monsels Solution of the Persulphate of Iron is very effective. It is applied with pressure to the bleeding area by means of wool rolled round the ends of artery forceps. On summing up, when one considers the nature of simple enlargement of the tonsils, minus any of the complications of such a pathological condition as would indicate total enucleation and also the fact that in the minds of the laity the removal of tonsils is generally looked upon as a trivial operation, I think one must give preference to the operations of tonsillotomy, at least from the point of view of the general practitioner, especially considering the dangers and difficulties met with in doing a true dissection operation on the tonsils.

INDICATIONS FOR OPERATION ON ADENOIDS.

As has been stated by such men as Politzer and Bosworth that adenoids tend in all cases to disappear at puberty, one may be inclined to put off operation, of course there are no grounds for such a statement, because the secondary effects are well established at the age of puberty.

As regards direct indications for their removal the association of the presence of adenoid growths with Nasal Catarrh is well known and although it has not been definitely established which is the causal factor of the other, nevertheless where we get a nasal catarrh along with adenoid growths, certainly improvement takes place when the adenoids are removed. Again as a result of oral breathing we get the outside air being inhaled directly into the air passages without previously being brought to a proper temperature or having the dust and foreign particles sifted by means of the nasal mucous membrane. As was pointed out by Meyer of Copenhagen the presence of adenoids was very often found in conjunction with suppurative and non-suppurative diseases of the ears. His investigations on this point showed that in a report on 102 cases of adenoids 72 suffered from pathological conditions of the ears. His work on this subject was greatly elaborated by Dr. Logan Turner of Edinburgh along

with Dr. McBride. They found that in 307 cases 144 had suppurative and 111 had non-suppurative disease of the ear, a total of 255 cases in all. Such reliable investigations should suffice to place this point as the greatest indication for removal of adenoid growths. These points also should serve to make digital examination of the nasopharynx in children imperative. The condition of "Aprosexia" described by Guye of Amsterdam, and meaning the loss of power of concentration and attention seen in children suffering from adenoids is an indication for removal. Recently it has been noted by many observers that the presence of T.B. in the adenoid tissue in the nasopharynx exist in a great many cases and this in itself is a very important point as one can readily appreciate for insisting for operative interference.

Amongst the better known indications are nocturnal enuresis night terrors, restlessness, and disturbed sleep and constant irritating cough.

SUMMARY AND CONCLUSIONS.

In summarizing my cases the following table will show the age incidence, and also that there is such a thing as sex incidence in cases which were treated.

As regards the tendency for the condition of Enlarged Tonsils to run in families, I think there can be little doubt on the subject. As stated above, in six families which came under my notice, the most obvious instance was in one family consisting of two boys and four girls. In this family, three girls aged 5, 9, and 12 years, were affected with both Tonsils and adenoids, and one boy aged 7 years had both conditions also. The other families mentioned above also tend to show that there is a family predisposition.

In many of the cases there were very definite mental disturbances closely resembling the condition of "Aprosexia" and even more noticeable in the fact that cerebration was very dull. In these cases I thought that combined with the usual after treatment, viz: giving courses of exercises in breathing and the exhibition of Iron and Cod Liver Oil, I would try the effect of Thyroid Extract. The result of this was very remarkable in one case of a boy aged 17. He had left school at the age of 14 years. He was always ranked as feeble minded, was very stupid at school, and was discharged from various occupations

because he showed so little sense. On examination he had extensive adenoids and large tonsils of a pedunculate character. The typical adenoid facies was present. I removed the tonsils and cleared out the adenoids, put him on regular breathing exercises, and gave him Thyroid Extract. grs.4. three times during the day. At the end of six months time he had improved greatly. Nasal breathing was established, and his mental condition was much improved. His mother was anxious that he should make up for lost time as regards his education. He was sent to evening classes and is now able to read and write about the standard of a boy of 12 years of age. He is physically very well, and able to take on the duties of a grocer's assistant. Whether the presence of the adenoids and tonsils was entirely the cause of his backward mental condition it is hard to say, but I think in such cases it is good treatment to follow operation with the exhibition of Thyroid Extract. Although the above case was perhaps the most obvious one I have got very satisfactory results in other cases especially those which the adenoids and tonsils had persisted after the age of puberty.

On looking over the Reports on School Medical Inspection one notices that out of the number of cases recommended for treatment in the cases of Tonsils and adenoids that in reality a small percentage are treated.

No doubt this is because the parents are afraid of the operation, but I have been led to believe that in many cases the Family Physician is to blame in as much as there seems to be a sort of "tug of war" between the Medical Inspector of the School children, and the home physician. The Medical Inspector recommends treatment, but as I have heard these officials say, the home Doctor gives his opinion that treatment is unnecessary for what reason one is at a loss to know. Doubtless this is one of the reasons why treatment is carried out in so few cases. Out of the number of cases recommended for operation it is interesting to find that on looking over Reports by the Medical Officers of Schools that a division of cases of Tonsils and Adenoids into three classes is made. So far as I have been able to ascertain this means in Class I tonsils are not enlarged and adenoids are absent; in Class II tonsils moderately or slightly enlarged, and adenoids present; in Class III tonsils are greatly enlarged and adenoids are extreme in development. I believe that it is only in Class III that treatment is recommended. This actually means treatment by operation, and so far as I am aware there is no mention of any other form of treatment for Class II. I think it is only reasonable that such a class should not be allowed

to stand without some form of treatment. In such cases the value of conservative treatment would be brought out.

The following statistics taken from the Reports on Medical Inspection of school children for the counties of Fife and Kinross for the year ending July 31st 1913, brings out clearly the wide-spread nature of the conditions.

The total number of patients examined was 13,436 and in the case of adenoids 930 children suffered from the condition equal to about 6% of the cases examined. In the case of tonsils out of 13,436 children examined, 3,255 suffered from enlargement of the tonsils in some degree equal to about 23% of the cases examined. Out of the number of cases recommended for treatment about 50% were actually treated. This perecntage holds good in both the case of enlarged tonsils and adenoids.

I think that instead of the Family Phusician being at variance with the school Doctor on the point of treatment for cases of Tonsillar enlargement and Adenoid hypertrophy, it would be infinitely better for the children for whose ultimate benefit after all medical inspection is carried out, if these two bodies of medical men would rather tend to work in harmony than otherwise.

AGE	MALES	FEMALES
Under 5	24	46
5 - 10	55	90
10 - 15	71	134
15 - 20	44	76
20 - 30	19	31
30 - 40	4	6

This table shows the age of incidence of the condition in my cases. It will be seen that enlargement of the Tonsils was most evident just before the period of puberty. I believe that my figures differ from other observers in the fact that most of my cases occurred in females. Out of the total of 600 cases, 383 were females equal to about 64%, and that in the case of males 217 or about 36%. In making my conclusions I may state

(1) That any form of hypertrophy of the Tonsils is pathological, and ought therefore to be treated either conservatively or radically depending on the degree of hypertrophy.

(2) That in children Tonsillotomy or Whillis' Method of Tonsillectomy is sufficient in the vast majority of cases of Simple Enlargement.

(3) That Tonsillectomy by dissection should be performed by a specialist only, and not attempted by a General Practitioner; and that in its performance a

skilled anaesthetist be employed.

(4) That Medical Inspection of School children is of great value in the detection of cases of Tonsils and Adenoids, and in this way can do a great deal to improve the health of these children in after life.

(5) That the co-operation of the Home Physician is essential to the Medical Inspection of School children in that the former should see that the treatment is carried out.